$$S_1=S_2=0, \quad S_3=-3p, \quad S_4=-4q, \quad S_5=-5r.$$

Hence, $A=-\sqrt[5]{\dfrac{q^2}{5p}}$, $B=\sqrt[5]{\dfrac{p^3}{25q}}$, $r=\dfrac{q^2}{5p}-\dfrac{p^3}{25q}$.

276. Proposed by W. J. GREENSTREET, M. A., Editor of The Mathematical Gazette, Stroud, England.

If $x_1, x_2, \ldots, x_n$ be unequal, and $f(x)$ be a rational integral function of degree $\not> n-2$, then shall

$$\sum_{r=n-1}^{r=1} \frac{f(x_r)}{(x_r-x_1)\,(x_r-x_2)\ldots(x_r-x_n)}=0.$$

Solution by the PROPOSER.

The left hand side written at length is

$$\frac{f(x_1)}{(x_1-x_2)\,(x_1-x_3)\ldots(x_1-x_n)}+\frac{f(x_2)}{(x_2-x_1)\,(x_2-x_3)\ldots(x_2-x_n)}+\ldots$$
$$+\frac{f(x_n)}{(x_n-x_1)\,(x_n-x_2)\ldots(x_n-x_{n-1})}.$$

Let $\dfrac{f(x)}{(x-x_1)\,(x-x_2)\ldots(x-x_n)}\equiv\dfrac{A_1}{x-x_1}+\dfrac{A_2}{x-x_2}+\ldots+\dfrac{A_n}{x-x_n}$.

Then $A_1, A_2, A_3, \ldots, A_n$

$$=\frac{f(x_1)}{(x_1-x_2)\,(x_1-x_3)\ldots(x_1-x_n)},\quad \frac{f(x_2)}{(x_2-x_1)\,(x_2-x_3)\ldots(x_2-x_n)},\ \ldots,$$
$$\frac{f(x_n)}{(x_n-x_1)\,(x_n-x_2)\ \ldots\ (x_n-x_{n-1})}.$$

Hence, $f(x)\equiv\Sigma A_1(x-x_2)(x-x_3)\ldots(x-x_n)=$polynomial of degree $\not> n-2$.
Hence, $\Sigma A_1=0$.

This problem, as we thought, proves to be similar to Ex. 4, p. 319, 3rd Edition of Burnside and Panton's *Theory of Equations*. ED. F.

GEOMETRY.

311. Proposed by J. OWEN MAHONEY, B. E., M. Sc., Dallas High School, Dallas, Texas.

Triangle ABC is obtuse-angled at C; x, y, z are squares on the sides AC, CB, BA; LH and MJ are lines joining adjacent sides of x, z and y, z. The common chord of the circles on LH and MJ as diameters passes through C and the mid-point of HJ.